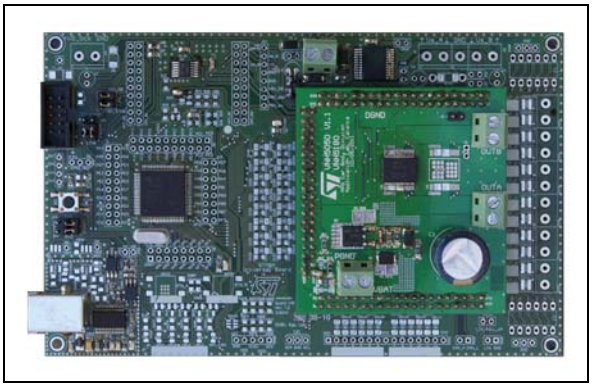
STEVAL-VNH5180A

Motor driver evaluation board based on VNH5180A

Data brief



Features

Type	$R_{DS(on)}$	I_{out}	$V_{CC(max)}$
VNH5180A-E	180 mΩ max (per leg)	8 A	41 V

- Handling up to 8 A of maximum motor current output
- Undervoltage shutdown
- Overvoltage clamp
- Device thermal protection
- Cross-conduction protection
- Current and power limitation
- Very low standby power consumption
- Programmable PWM operation (up to 20 kHz)
- Protection against loss of ground and loss of V_{CC}
- Motor current monitoring (thanks to VNH5180A current sense output)
- Device output protected against short to ground and short to V_{CC}
- Graphic User Interface (GUI)

Description

STEVAL-VNH5180A offers dedicated power stage and controls suitable for electric DC motor driving. This evaluation board comes pre-assembled with VNH5180A H-bridge belonging to the VNH Motor Driver series based on VIPower® proprietary technology. A typical application is the door lock.

This evaluation board consists of a motherboard (STM8 Universal Board) and a daughterboard.

The motherboard, based on STM8 microcontroller, provides the logic section for monitoring and driving the VNH5180A assembled in the daughterboard.

With the aim to make simpler the board usage and settings, ST provides a dedicated and user-friendly software with a Graphic User Interface (GUI). This enables the user to set VNH5180A parameters (PWM, Motor direction…) and at the same time it shows real time device diagnostic information like current output evolution, battery voltage monitoring, board temperature and much more.

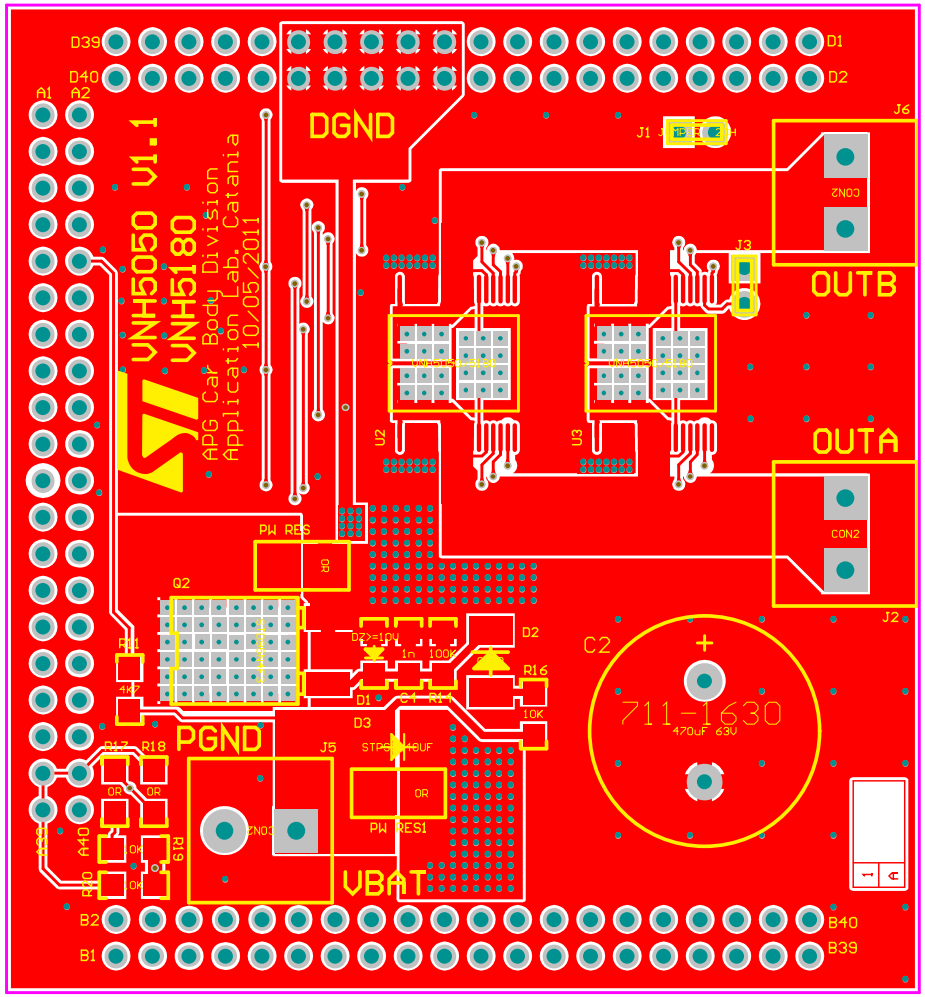
Table 1. Device summary

Order code	Reference
STEVAL-VNH5180A	VNH5180A evaluation board

1 Application schematics and layouts

1.1 VNH5180A daughterboard

Figure 1. VNH5180A daughterboard top layer



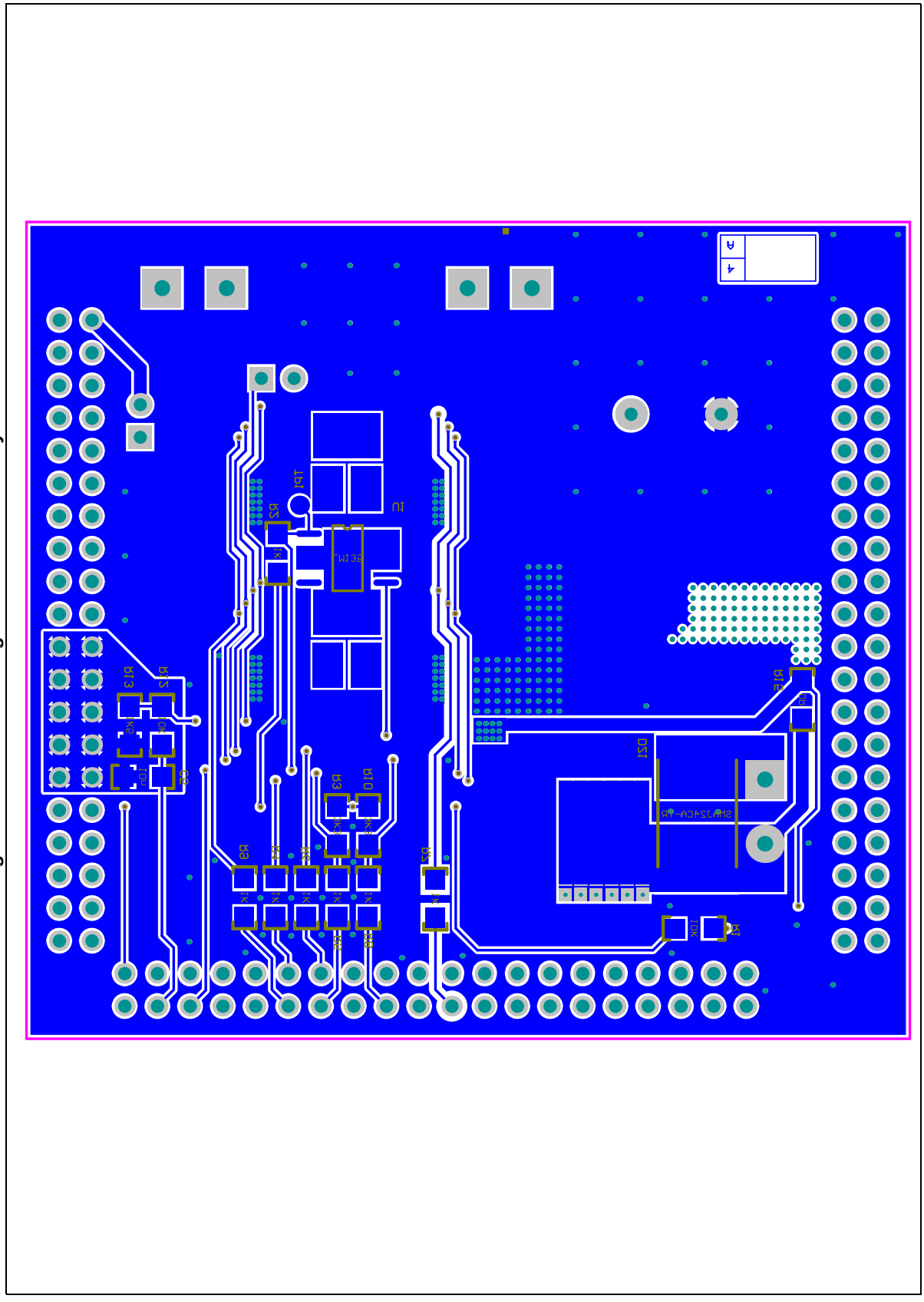


Figure 2. VNH5180A daughterboard bottom layer

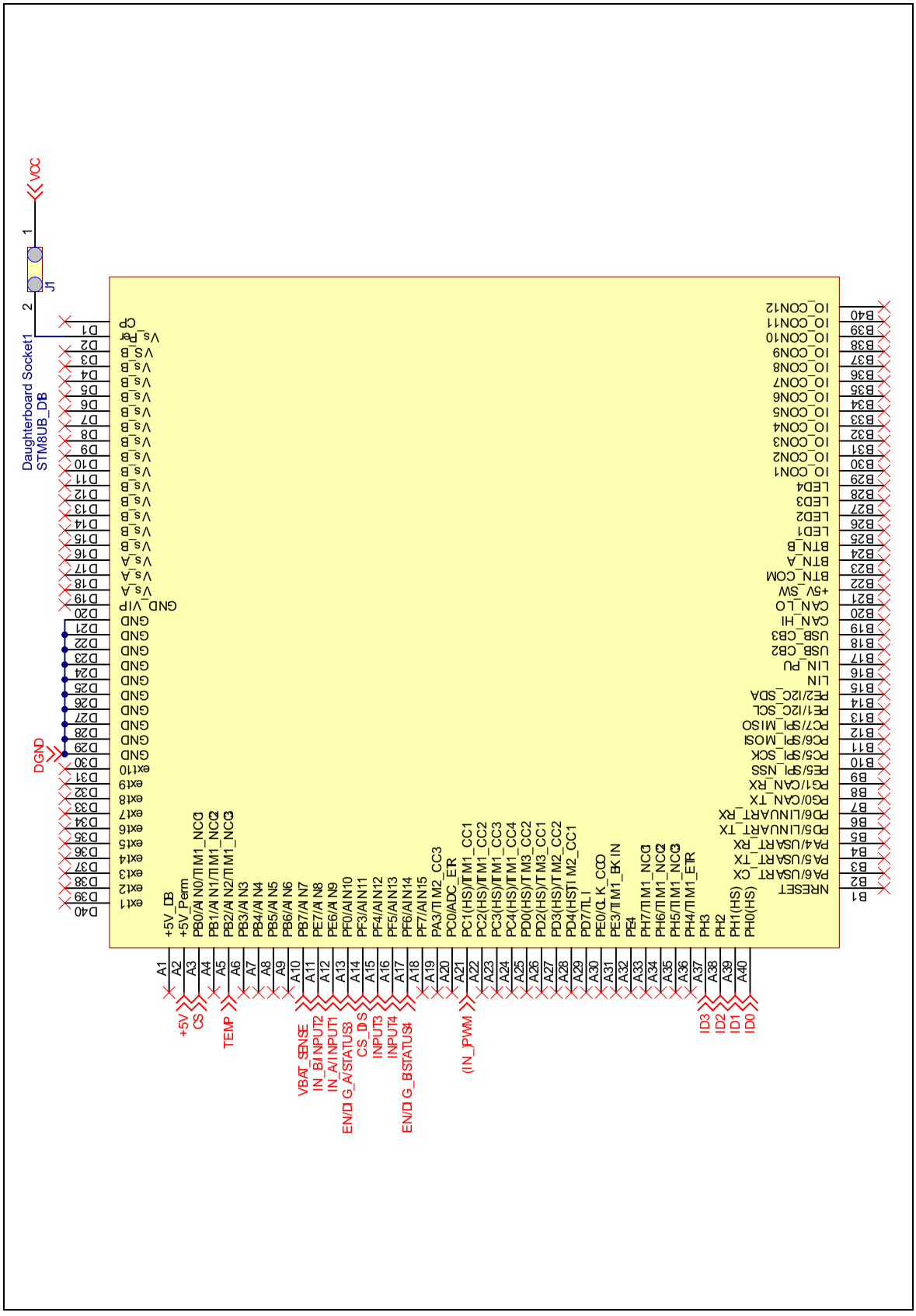


Figure 3. VNH5180A daughterboard application schematic (part 1)

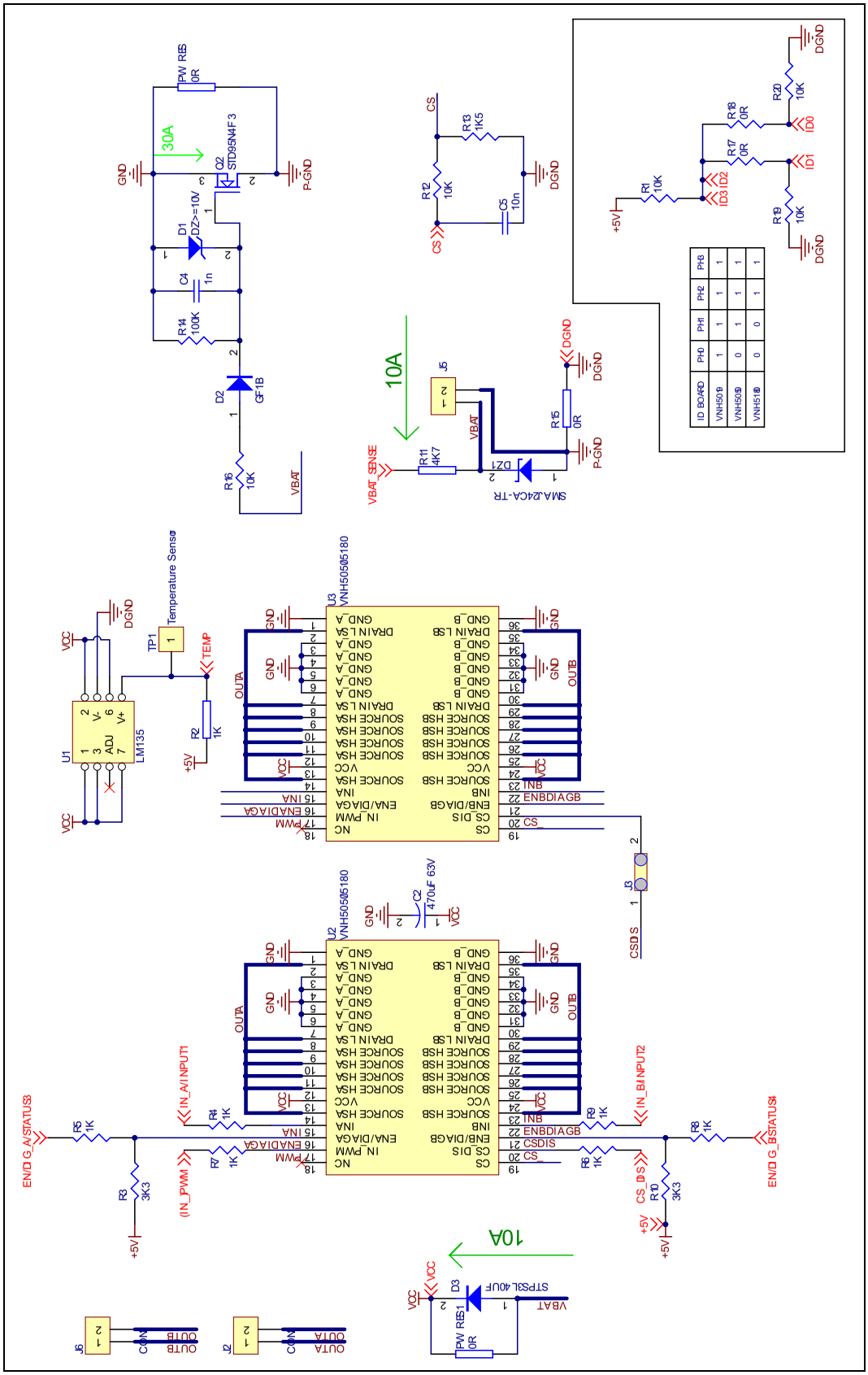


Figure 4. VNH5180A daughterboard application schematic (part 2)

1.2 STM8 motherboard

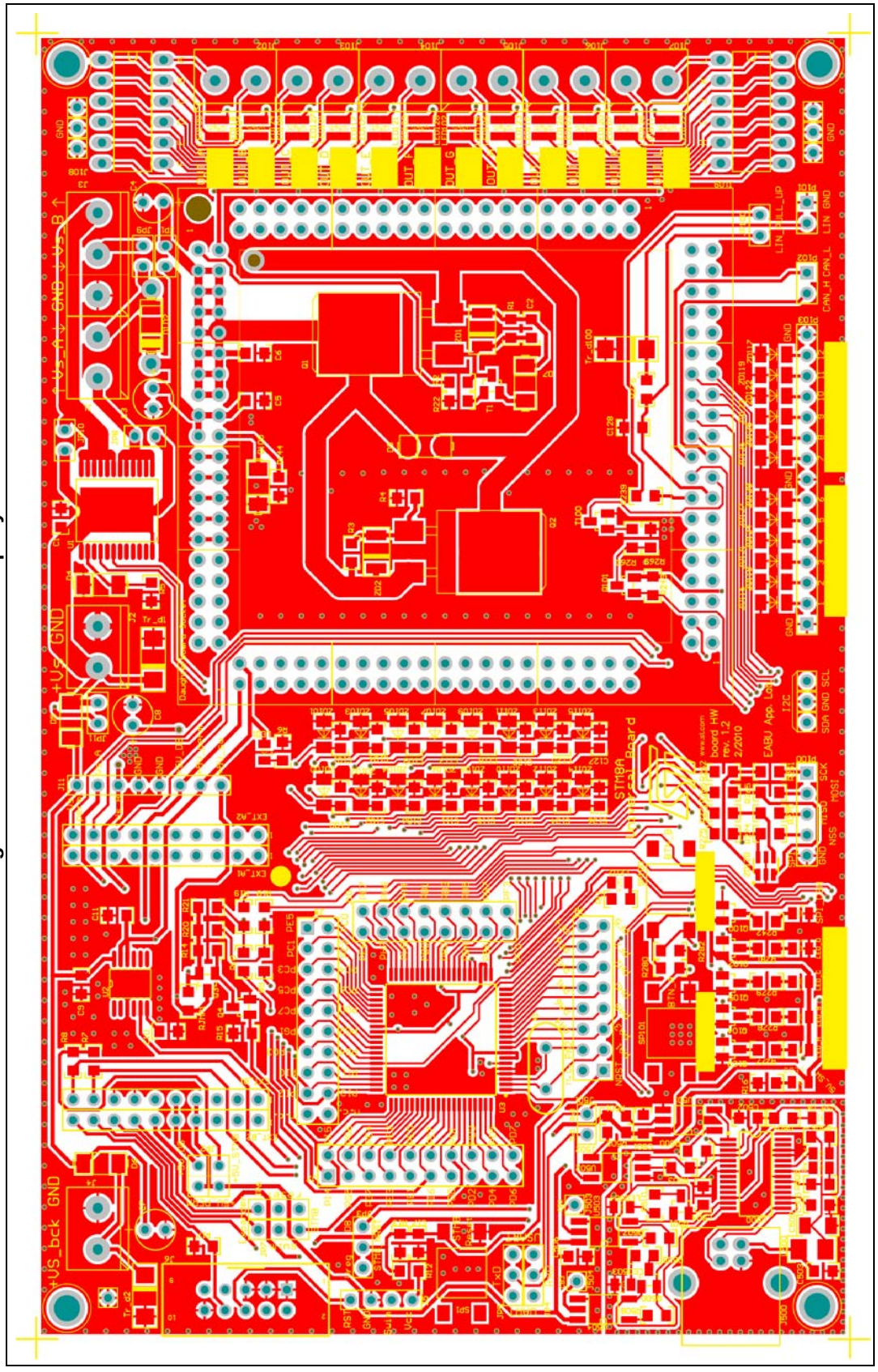


Figure 5. STM8 motherboard top layer

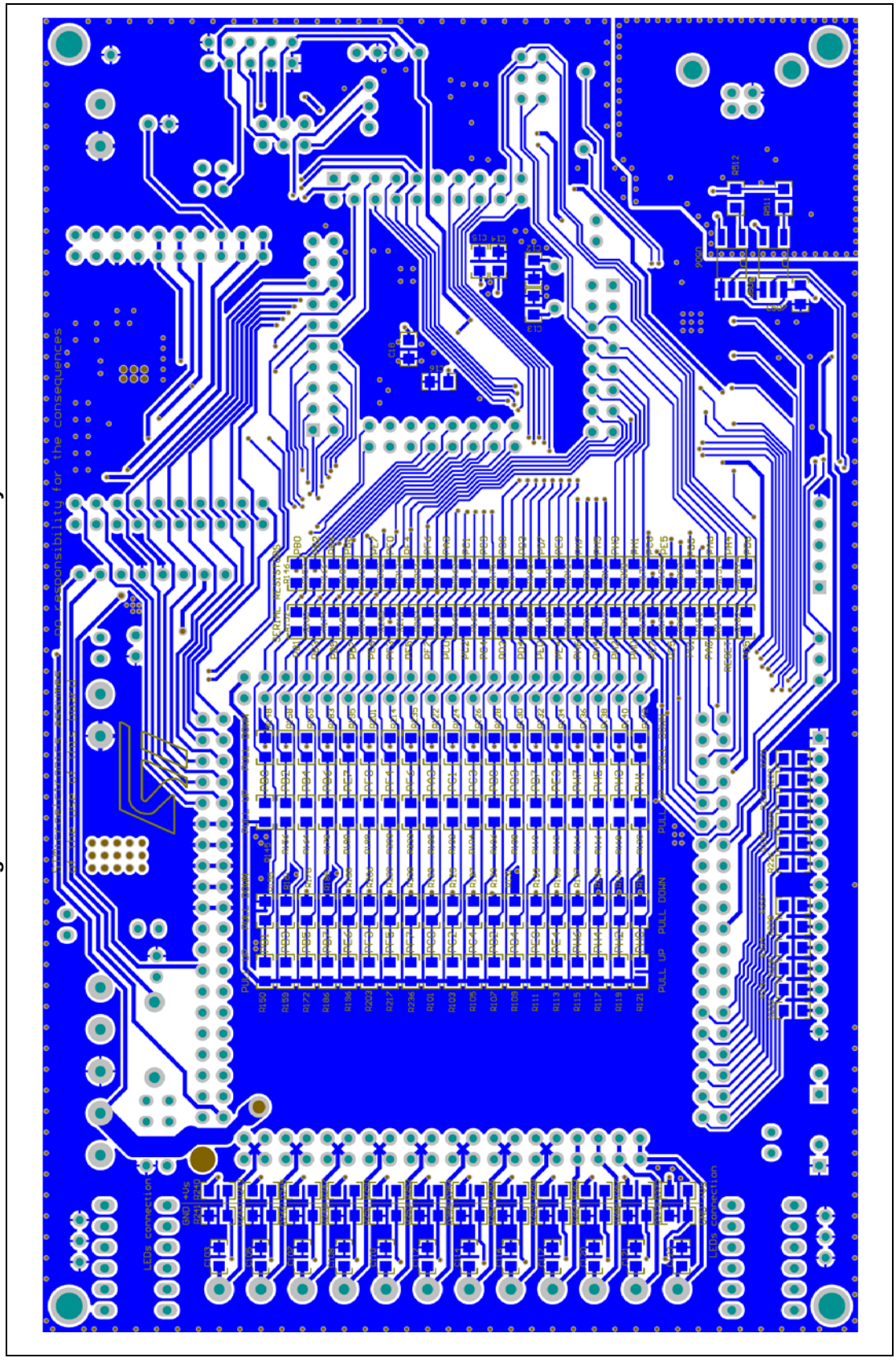


Figure 6. STM8 motherboard bottom layer

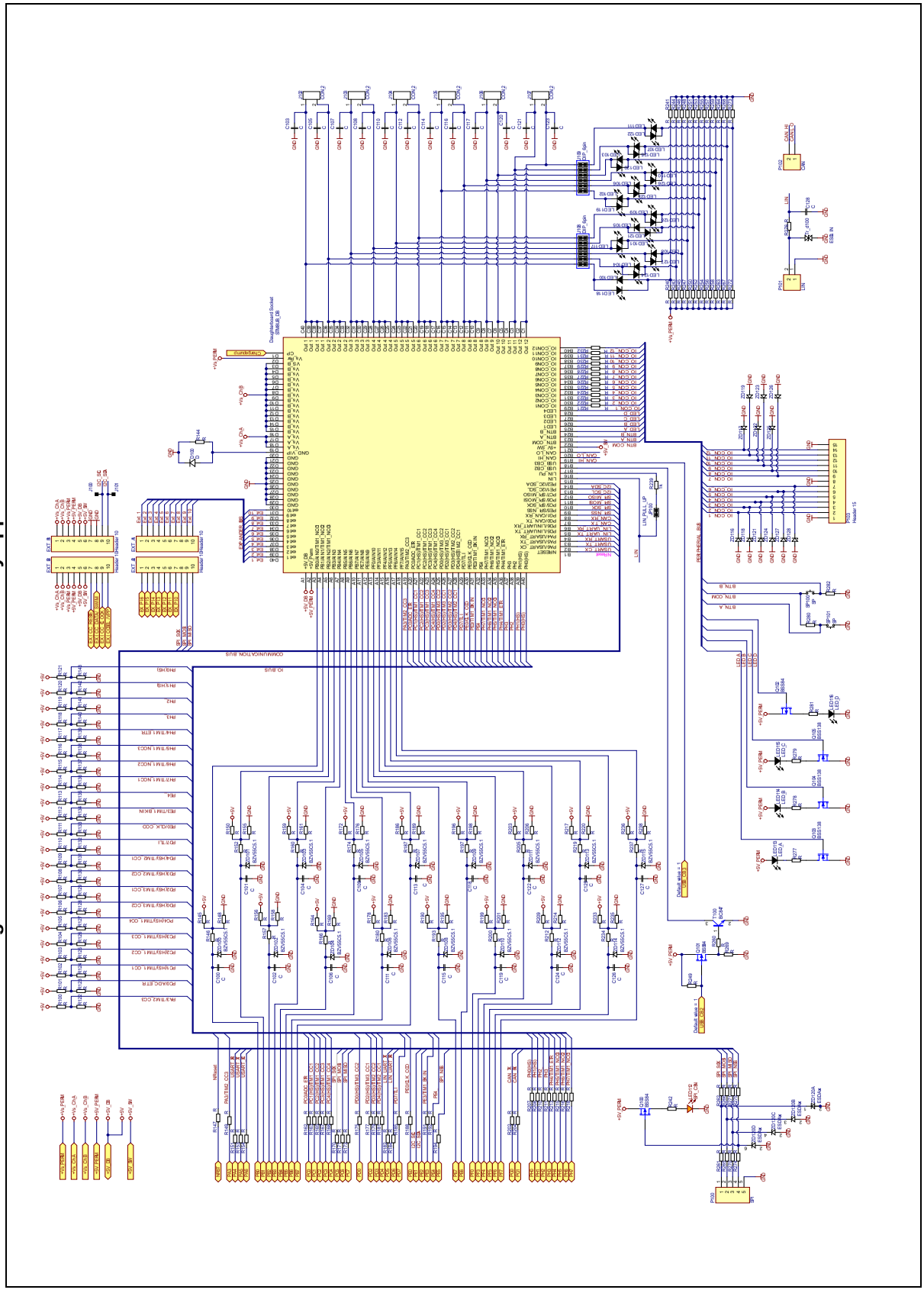


Figure 7. STM8 motherboard - I/O & Body application schematic

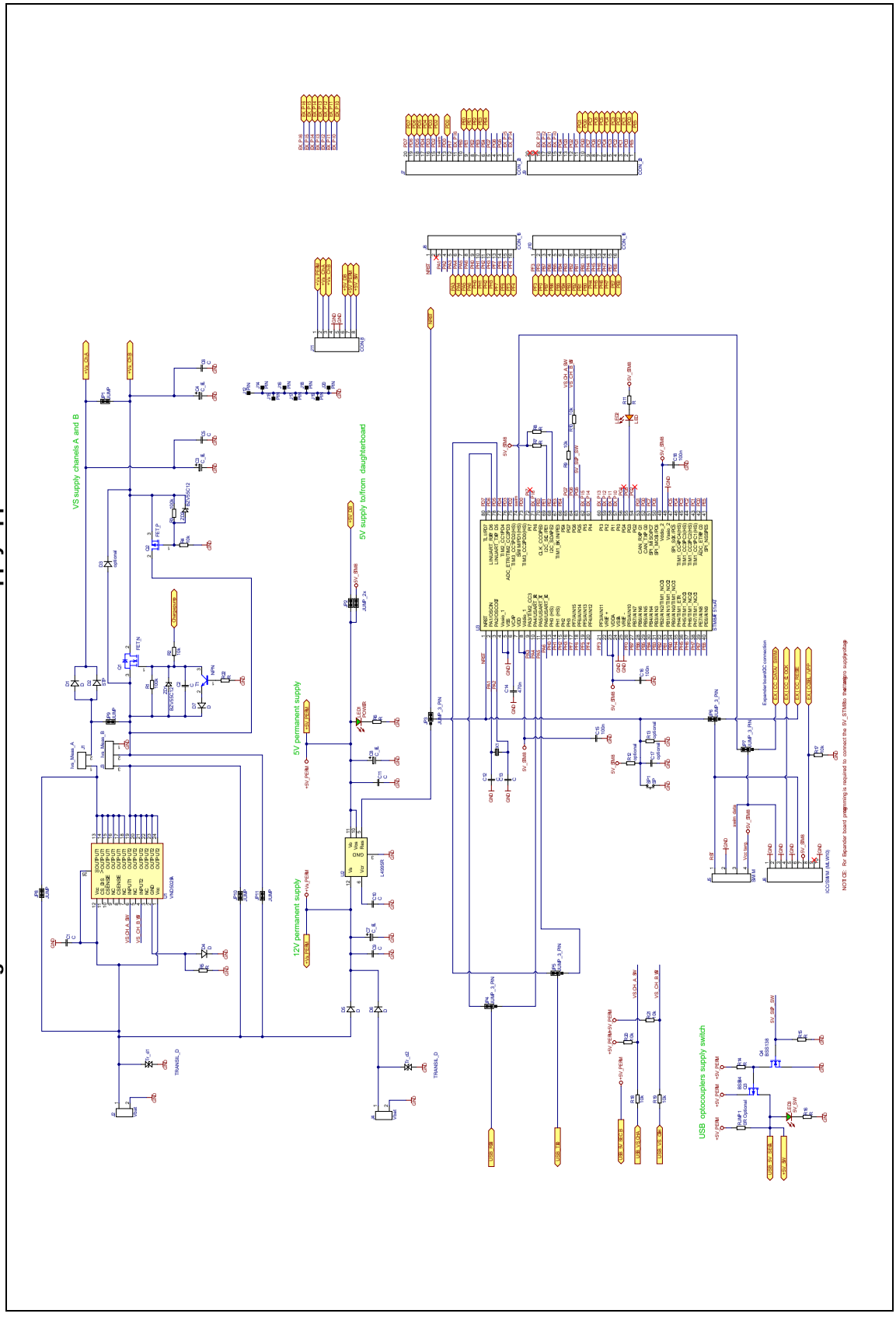


Figure 8. STM8 motherboard - STM8 & Supply application schematic

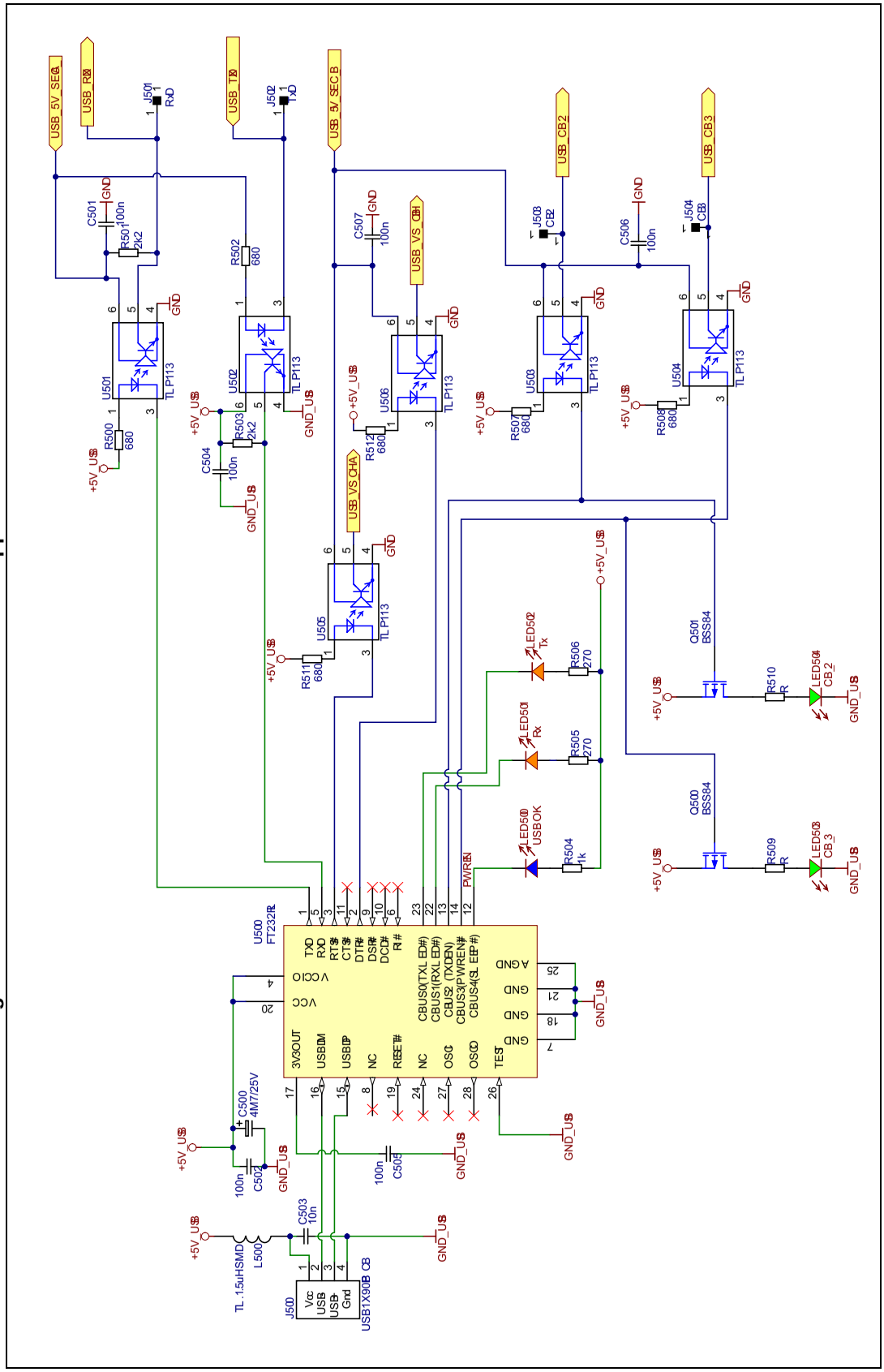


Figure 9. STM8 motherboard - USB Interface application schematic

2 Revision history

Table 2. Document revision history

Date	Revision	Changes
22-Jul-2013	1	Initial release.
06-Sep-2013	2	Updated *Section 1.2: STM8 motherboard*
16-Sep-2013	3	Updated disclaimer.

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